NEWSLINE

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Lab celebrates 50 years with style

FROM THE DIRECTOR'S OFFICE

TOM ISAACS

Weeklong series of events exceeds all expectations

Wow! Last week was the culminating week celebrating our 50th anniversary. The events were more than a year in the making, and I think it's fair to say they far exceeded our expectations. I hope each of you took the opportunity to participate in some way.

And if by chance you didn't, I'd encourage you to find the time to view some of the rebroadcasts of events and read some of the special publications.

Certainly a look through this issue of *Newsline* will help capture some of the excitement.

As the coordinator of the anniversary activities, I had the opportunity to attend almost all the events. I think others that did were impressed by the tremendous gratitude and expressions of the importance of our contributions that we received from virtually all of our colleagues and sponsors. We were honored by the attendance of representatives from the White House, NNSA, the University of California, the

See **ISAACS,** *page 8*

MICHAEL ANTHONY/TID

Directors panel members included (from left) Michael Anastasio, Bruce Tarter, John Nuckolls, Mike May, John Foster and Herb York. Harold Brown participated via teleconference: Edward Teller was represented via video presentation.

Directors reflect on past, present, future

By Anne M. Stark

NEWSLINE STAFF WRITER

Fifty years ago, Lab employees didn't dress anything like they do today. The suits and ties of today would have been exchanged for sandals and shorts, and "I mean outer shorts," former director John Foster said.

In a special panel discussion, seven former directors recalled the early days and speculated on the future of the Lab last week as part of the Lab's 50th anniversary events. Director Michael Anastasio moderated the panel, giving time for each director to discuss the issues of his tenure, the significant roles the Lab played and close with a few thoughts on future missions.

From a previously televised interview, second Lab Director Edward Teller spoke of his relationship with Ernest O. Lawrence and

See **PANEL,** *page 6*

Showcase for science takes center stage

By Anne M. Stark

NEWSLINE STAFF WRITER

A showcase of innovative science and technology was on center stage last week as Science Day kicked off a week of events in celebration of the Lab's 50th anniversary.

Lab employees and retirees, visiting scientists and professors as well as Department of Energy administrators packed the Bldg. 123 auditorium for a day of lectures running the gamut from former Lab astrophysicist Stirling Colgate talking about the similarities of supernovae and nuclear bombs, to Fred Milanovich discussing the importance of DNA detection in countering terrorism.

But the panel discussions were only part of "Innovative Science

See **SCIENCE DAY,** *page 8*

JULIE KORHUMMEL/NEWSLINE

Owen Drury and Thomas Niedermayr use science to make sorbet.

Goodwin, Santer win prestigious Lawrence Awards

By Anne M. Stark

NEWSLINE STAFF WRITER

Two Lab physicists are winners of the prestigious E.O. Lawrence Award for their outstanding contributions in the field of atomic energy. Bruce Goodwin, a physicist and associate director in the Defense and Nuclear Technologies Directorate, was named for his work in the national security category, and Ben Santer, a physicist in the Program for Climate Model Diagnosis and Intercomparison, was honored for his work in the environmental science and technology category.

Bruce Goodwin

Ben Santer

Goodwin and Santer are two of seven winners. Each winner will receive a gold medal, a citation and $25,000. The award is given for outstanding contributions in the field of atomic energy, which has influenced many fields of science such as environmental research, materials science and nuclear medicine.

"We are all enriched by the contributions these researchers have made ranging from understanding the genetic code to measuring the expansion of the universe itself," Secretary of Energy Spencer Abraham said.

The award was established in 1959 to honor the memory of the late Ernest Orlando Lawrence, who invented the cyclotron and is the namesake of the Department of Energy's Lawrence Livermore and Lawrence Berkeley national laboratories.

Awardees are chosen for their work in one of seven categories: chemistry, national security, nuclear technology, physics, life sciences, materials research — which was first awarded in 1984 — and environmental science and technology — first awarded in 1993. The awards will be presented in a ceremony

See **AWARDS,** *page 6*

Comforting tribute — Page 2

Weapons excellence — Page 3

Balancing Acts — Insert

LAB COMMUNITY NEWS

Weekly Calendar

Tuesday 1

There is still space in the **Intermediate Investment Planning Workshop**, a half-day workshop that offers an in-depth analysis of investment modeling and asset allocation theory. Cost is $45. To register to go to www.llnl.gov/jobs/benefits and click on workshop registration.

Wednesday 2

The **Rubber Stamping Network Group** meets the first and third Wednesday of the month at noon in Bldg. 571, room 1301.

• • •

Take the **"The Road to Balance"** presented by the Employee Assistance Program at noon in Bldg. 571, room 2301. Learn to recognize the stressors that occur when trying to combine a career and a family life, understand the attitudes, beliefs and myths which help — and hinder — you in daily activities. Pre-registration is required to reserve your seat. Contact: Sharon Giovannoni, 2-5571.

Saturday 5

Rubber Stamping Network Group is hosting a **"Holiday Fun" stamp camp,** beginning at 10:30 a.m. in Bldg. 415, Yosemite Room. This is a hands-on training session on different stamping techniques. Fee is $15 to cover the cost of materials and instruction. Family members welcome. Deadline to sign up is Sept. 30. Contact: 2-6684.

Sunday 6

Happy 100th birthday, Teddy Bear! Celebrate this event the **100th anniversary of the Teddy Bear** at a tea at 1:30 p.m. at Ravenswood Historic Site, 2647 Arroyo Road in Livermore. Seating is limited and by reservation only. Cost is $25 per person and $15 for children ages 5 to 12. (Not suitable for children under 5.) Contact: Carole Phillips, 371-4456, for reservations.

Editor's note

Due to expanded coverage of the 50th anniversary, regularly featured classified ads, the technical meeting calendar and the history page are being withheld from today's issue. Classified ads and the technical meeting calendar are available on the Web.

Newsline

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Quilt show recalls September 11, aftermath

A collection of quilts sent as a source of comfort to the Pentagon following the attacks of September 11 will make a special stop at the Laboratory next week.

The LLESA Piecemakers Networking Group has arranged for 35 of the quilts to be displayed around the LLESA pool area beginning at approximately 11:30 a.m. Tuesday.

"This will be a phenomenal show," said Penny Pennington of the LLESA Piecemakers, the Lab's needle arts guild. It was Pennington and other Piecemakers members, including club president Floy Worden and Diane McGovern, who worked with Cynthia Rose of LLESA to bring the collection to the Lab.

Following the September 11 attacks, the Pentagon began receiving dozens of quilts from the United States, Canada and other parts of the world. June Forte of the Pentagon's Public Affairs Office decided to make them part of a national touring show.

Pennington, a longtime quilter, heard about the show while attending a lecture of the Diablo Valley Quilters.

Pennington said it is not uncommon for quilters and other needlecrafters to send such gifts following a tragedy. Not only do such works serve as a reminder of the moment, but they also help the healing process.

"These quilts remind us that September 11 was an attack on America. It's not just the World Trade Center, it's not just the Pentagon, it's not just the crash in Pennsylvania. These quilts show all of America is hurting."

A collection of quilts sent to the Pentagon following the attacks of September 11 will make its way to the Laboratory on Tuesday. The quilts, many with patriotic themes, will be displayed in the LLESA pool area.

Among the 35-50 quilts on display is the 16-by-26-foot American flag, made from more than 7,000 felt handprints of Livermore schoolchildren. The quilt was prominently displayed during the Lab's 50th anniversary events as well as the September 11 remembrance held earlier this month.

Other quilts on display Tuesday will depict everything from the actual attacks on the Pentagon and World Trade Centers, to tributes to those killed in the attacks, to recovery and rescue efforts, to messages of sympathy and support. Many are in red, white and blue.

Also during the day, Rachel Decker, a member of the Phoenix Project, the effort to rebuild the Pentagon, will make a guest presentation at 10:30 a.m. in the Bldg. 361 auditorium. Following that talk, the Piecemakers will present a quilt to the Pentagon, on behalf of the Lab, Johnson Controls, DOE and NNSA.

The Piecemakers will conduct a raffle of two "Uncle Sam" quilts, made by the LLESA group. One will be given away following the talk, and one will be given away during the quilting show. Winners must be present.

Throughout the day, the Piecemakers will also distribute a special red, white and blue stars and stripes pattern, titled "American Tribute."

Manteca Youth Focus

Members of the Manteca Youth Focus Entertainers performed at the Laboratory during Family Open House last week. 'It was a unique opportunity for the entertainers to perform for such a large number of people,' said Vicki-Mason Reed, Youth Focus board member and a Lab employee.

Help Archives preserve record of 50th anniversary

With the 50th anniversary celebrations over, are you ready to close your files? The histories, interviews, brochures, fliers, photographs, posters and announcements you produced for the 50th anniversary celebration may be valuable to LLNL staff in the future as they plan and look back, perhaps at the 100th anniversary celebration.

The LLNL Archives and Research Center preserves and manages these materials — as well as records of research and operations — for future use. Consider offering copies of your materials to the Archives for preservation and cataloging. Contact Maxine Trost at 2-6539 or trost5@llnl.gov.

AROUND THE LAB

NNSA honors Lab for 'weapons excellence'

By Kent Johnson
DNT CHIEF OF STAFF

NNSA's Deputy Administrator for Defense Programs, Everet Beckner joined DNT Associate Director Bruce Goodwin last week to present the "Weapons Recognition of Excellence Awards" to Laboratory recipients. These certificates, which some have likened to the weapons community equivalent of the Academy Awards, contributed yet another facet to the Lab's 50th anniversary week celebrations.

By the numbers

Eighty-eight recipients were nominated in eight awards, categories by DNT management, NNSA program managers, and in one case, Sandia. NNSA reviewed those nominations and selected the winners. Two were individual awards; six represented team efforts. Of the team award, five were Livermore-led teams; one was from Sandia. Four awards focused on ASCI codes and computer system integration and operation; an equal number rewarded other areas of stockpile stewardship accomplishments.

Weapons design and archiving

Retiree William F. "Bill" Scanlin Jr. was recognized for his contributions to advancing weapon primary design and for archiving that work. Prior to retirement, Scanlin participated on 93 nuclear tests, during which he developed sophisticated design approaches through systematic investigation of key factors that affected performance. His designs included unique features that became instrumental in advancing the state of the art in both tactical and Anti-Ballistic-Missile weapon design. Scanlin was the program manager for the W79 nuclear artillery shell warhead. He also was the lead primary designer for the W71 Spartan warhead.

This past year he contributed two major review papers to Livermore's ongoing archive program. The first summarized historical development and design decisions for a type of primary design. The second reviewed the history of nuclear artillery-fired projectiles.

Bruce Goodwin noted that "…Scanlin's work serves as a model for effective contributions to preserve knowledge within the U.S. nuclear weapons program by retirees."

High-explosives research

Randall L. "Randy" Simpson was recognized for leadership of high explosives development and analysis activities at the Lab. This work included efforts to develop a multi-scale approach to understanding high-explosive phenomenology, and improvement of computer models used in codes to calculate nuclear weapon primary performance and safety. Simpson also has been an outstanding contributor to DoD work on advanced explosive technology.

"Randy's leadership was crucial to establishing the Lab's Energetic Materials Center as one of the nation's premier centers for high explosives technology," said Goodwin.

Burn code development

Under team leader Gary W. Carlson, the Lab's Burn Code Project Team was cited for completion of the first full-system, three-dimensional simulations of a nuclear weapon explosion, using an 800,000-line code developed by Livermore scientists. These simulations of a complete weapon system allowed researchers for the first time to examine key physics through a combination of simulation, precision experiments, and analysis of data from past nuclear tests.

Team contributors included Grant Bazan, Hank R. Childs, Christopher J. Clouse, Michael R. Collette, John C. Compton, Bob Corey, Rebecca M. Darlington, Shawn A. Dawson, Frank R. Graziani, Burl M. Hall, Christopher P. Hendrickson, Shirley R. Jennings, John R. Johnson, B.I. Jun, Thomas L. McAbee, Jeremy S. Meredith, David S. Miller, Ivan J. Otero, Richard Procassini, Brian S. Pudliner, Peter W. Rambo, John D. Rogers, Janine M. Taylor, Danny R. Tolar Jr., Roger M. White, and Brad J. Whitlock.

"Understanding these physics issues is critical to the manufacture of replacement weapon components and refurbishment of aging stockpile weapons," according to Bruce Goodwin. "Accomplished ahead of schedule, completion of this important milestone contributed greatly to the NNSA mission and the Stockpile Stewardship Program."

MICHAEL ANTHONY/TID

Bill Scanlin (center) received an award for weapons design and archiving from Bruce Goodwin (left) and Everet Beckner.

Weapons design and engineering

Under team leader Charles F. "Charlie" McMillan, the W80 Baselining Study Team was recognized for an exemplary project that established a firm basis of modern understanding for the W80-01 warhead. The team leader worked closely with counterparts at Los Alamos to establish an effective process for transfer of design and test information, as well as a productive peer review approach. Team members conducted multiple independent tests and experiments. They also performed calculations using new ASCI codes, to investigate aspects of performance and weapon response to the stockpile-to-target sequence. Work was documented in an extremely thorough study report that serves as an excellent point of departure for analysis of the effects of modifications planned in the W80 Life Extension Program.

The team included John Alvarez, Dan Badders, Russell Benjamin, Robert Canaan, Scott Carman, Anthony DePiero, Gregory DiPeso, Mary (Fran) Foltz, Juliana Hsu, William McLean, James Miller, Juan Moreno, Thaddeus Orzechowski, Peter Raboin, Peter Rambo, Gordon Spellman, Leonard Summers, Derek Wapman, and Kris Winer.

ASCI computing

Terry Heidelberg led the ASCI White Integration Team. That group was recognized for an outstanding contribution and dedicated effort that achieved essential milestones of the Advanced Simulation and Computing Program Stockpile Stewardship Program. Included was the successful tri-lab use of Livermore's ASCI White computer, capable of performing 12.3 trillion mathematical operations per second. This accomplishment represented a major step forward in NNSA's ASCI Program plan to build faster computers to produce nuclear weapons simulations in the absence of underground testing.

The team included Brian Carnes, Doug East, Dave Fox, Robin Goldstone, Mark Grondona, Barbara Herron, Steve Louis, Mike McCoy, Mark Seager, Joe Slavec, and Py Watson.

Weapons design and engineering

Thomas Anklam's W62 Pit Surveillance Team demonstrated exceptional leadership in the successful completion of a pilot program to demonstrate the Lab's capability to perform pit surveillance inspections. The project included an extensive set of upgrades to Plutonium Facility capabilities, development of a rigorous quality infrastructure, and demonstration of the capability to perform required inspection procedures. In addition, the team introduced new tools and methods to provide additional insight into the properties of aging weapons materials. Based on the success of the pilot program, Livermore now is qualified to perform all future pit surveillance of Lab-designed warheads.

Team members included Steven Benson, B. William Choi, Paul Curtis, Kenneth Dolan, Patrick Epperson, Gilbert Gallegos, David Hiromoto, Thomas Meier, Shawn Peterson, William Poulos, James Sevier and James Upshaw.

ASCI computing

Steven Louis led a tri-laboratory Capability Computing Services Support Team of four computer scientists who devised a new model for user services and integration on the ASCI White computer. This was the first system for which the three weapons laboratories routinely shared a large computing resource. The support system established included a hot-line service available 10 hours a day, extensive Web pages for information and for network status displays, operator support nights and weekends, and a tri-lab policy committee.

Other computer scientists on the team were Robin Goldstone, Terry (Samuel T. Jr.) Heidelberg, and Jean Shuler.

Development of experimental capabilities

Nominated by Sandia National Laboratories, Isentropic Compression Experiments Team members Art Toor and David Reisman were recognized for sustained and dedicated effort within an inter-laboratory team, along with 17 Sandia employees and one Bechtel Nevada employee. They developed isentropic compression experimental techniques and applied them to improve understanding of stockpile materials properties.

An innovative new capability, ICE was developed on the Z Accelerator at Sandia about three years ago, and was used extensively this past year for weapons applications. The technique employs high currents and magnetic fields to achieve shockless compression of materials to megabar pressures over time intervals of 200-300 nanoseconds. A combined ICE/flyer capability provides a unique ability to study stockpile materials with high accuracy at pressures appropriate to operational regimes of weapon primaries.

These techniques were employed effectively to study material properties ranging from aging effects on case materials, to the equations of state for deuterium. The notable accomplishments made by the ICE team were achievable only through inter-laboratory cooperation involving Sandia, Bechtel Nevada, and the Lab.

CELEBRATING FIFTY YEARS

Security leaders salute Lab for 'keeping America safe'

Politicians all the way up to the president, national security experts, community leaders and past and present employees saluted the Lab last week during a weeklong series of 50th anniversary events.

Throughout the week, the Lab was presented with proclamations, plaques, medals and more — all commemorating 50 years of service to the nation.

On Friday, Ambassador Linton Brooks of the National Nuclear Security Administration, Adm. James Ellis of Strategic Command, Gen. John Gordon of the White House and UC President Richard Atkinson came to the Lab to honor its long history of service to national security and future missions to come. Also making presentations were Dale Klein, assistant to the secretary of Defense, and Rep. Ellen Tauscher, who could not attend but sent a video offering congratulations.

MICHAEL ANTHONY/TID

Ambassador Linton Brooks of the NNSA presented the DOE Gold Award to all employees.

Gordon even brought a letter of congratulations from President George W. Bush.

"You have built the foundation for the next 50 years," Gordon said, adding that in the next 50 years the Lab "will be every bit as great as it was then and more than it is now."

Gordon, who left as NNSA administrator earlier this year to join the White House, joked he missed his NNSA days when he could talk to young scientists, "or call (former Director) Bruce Tarter to complain about something. I've asked Ambassador Brooks (now the acting NNSA administrator) to maintain that tradition" with Director Michael Anastasio.

Brooks presented DOE's Gold Award, the department's most distinguished honor, "to all employees" for 50 years of "keeping America safe."

"Your strength is not looking at the past, but looking at the future," he added.

Ellis, commander of Strategic Command, also praised the Lab for its ability to see into the future and pursue those "opportunities well outside the cutting edge. The Laboratory is properly known as one of the world's premier science research centers."

In a video presentation, Tauscher apologized for not being able to attend the day's events due to her congressional responsibilities. But she told the assembled crowd it has much to be proud of. "I represent the smartest people in the world. The men and women working at the Lab are good Americans."

Earlier in the week, Tauscher entered a proclamation to the Lab into the Congressional Record. It was presented to Anastasio on Wednesday.

MICHAEL ANTHONY/TID

Gen. John Gordon (right) presented Director Michael Anastasio with congratulations from President Bush.

Presidential medals

UC President Richard Atkinson closed out Friday's ceremony by presenting special UC President's Medals to four of the early Lab's directors: Edward Teller, Harold Brown, John Foster and Mike May (Herb York had previously received a medal). All were honored as "visionary leaders, brilliant scientists" and "distinguished scholars" who "devoted their lives to safeguarding and

See **COMMUNITY,** *page 5*

John Glenn shows Lab he still has the right stuff

By Lynda Seaver
NEWSLINE STAFF WRITER

Former astronaut and U.S. Senator John Glenn returned to the Lab last week, making as big a splashdown as his historic flight more than 40 years ago.

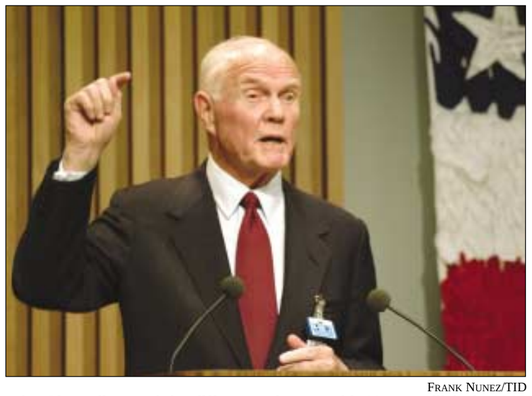
Glenn, the first American to orbit the Earth back in 1962, was greeted with a standing ovation upon entering the standing-room-only Bldg. 123 auditorium. Though his talk was largely about his experiences in the NASA space programs, first as a Mercury astronaut and later as a mission specialist on board the space shuttle Discovery in 1998, Glenn did take time to honor the Lab, calling it "one of the most valuable square miles in the nation."

"The role you've played and continue to play cannot be overestimated…You are the heir of scientific excellence and advancement that is the envy of the world."

During his talk, Glenn called for the Lab to continue to assist U.S. intelligence to prevent terrorist attacks. "Prevention must be our goal and that means a maximum emphasis on intelligence," he said.

"The world needs your expertise and needs it now. If you have good luck in your endeavors, that will be good news for the rest of us."

Glenn has visited the Lab a number of times. He came with his family last month to tour various programs and facilities. He also visited the Lab during his 24 years as Ohio's U.S. Senator. Throughout his visit Wednesday he was gracious and approachable, taking time to shake hands with employees, sign autographs and chat as if reuniting with lifelong friends.



FRANK NUNEZ/TID

John Glenn discussed the differences between his Mercury flight in 1962 and his space shuttle flight in 1998 during a talk to employees.

During his talk, Glenn recalled the early days of NASA's space program, describing it as a very visible way to show America's technical superiority over its Cold War rival, the Soviet Union.

He spoke lightheartedly of the intense training involved, singling out an exercise in which ice water was injected into his inner ear. Glenn recalled the loss of equilibrium, the blurred vision and disorientation induced by such an experiment, summing up "I don't know what this tells the doctors." He then cited the various G-force experiments he and his fellow Mercury astronauts had to endure, one in which they experienced forces of up to 16 Gs. That exercise was dubbed "E-I-E-O," or "eyeballs in, eyeballs out."

Glenn also poked fun at his age. Now 81, Glenn was the oldest man to venture into space in 1998, as a volunteer for the study of the effects of zero-gravity on the elderly. He told the crowd there was no truth to the rumor NASA would not allow him to spacewalk for fear that at his age, "I might wander off." And "it is not true I was the first person of my age to leave Florida in something other than a Winnebago."

Glenn went on to describe the differences between his Mercury and Discovery flights, citing the improvements in food, G forces (almost 8 Gs on the Mercury compared to 3 on the shuttle) and the intricacies of sleeping and going to the bathroom in zero gravity. He described the sleeping bag and bungee cord contraption fellow shuttle astronauts would use to fasten themselves to the wall or ceiling. It wasn't uncommon to wake up and see someone on the ceiling staring back down at him. "Of course, in space ceiling is a relative term," he added.

Glenn called for the need to instill today's youth with the same passion toward space and science that their parents possessed back when the space program was getting off the ground.

He cited low scores for math and science across the country, adding 'I'm very concerned about that. If we are to remain a dominant leader this must be addressed immediately."

work & life BALANCE

A monthly supplement provided to employees as part of Survey Action Team Initiatives.

SURVEY ACTION UPDATE

TOMMY SMITH

Making milestones in SAT implementations

Since our last update on the Survey Action Team initiatives, we have completed several projects and major milestones, and made significant progress on others. The implementation of five additional projects is scheduled to be completed before the end of the calendar year. Today, I'd like to provide an update on our progress.

The SAT recommendations currently being implemented are derived from the seven actions that emerged from the Senior Management offsite held in February. These approved actions in some cases referred to a specific Survey Action Team recommendation, but in other cases described broad categories of effort.

To ensure that these actions were implemented in a manner that was both responsive to the spirit of the original SAT recommendations and fiscally accountable, it was necessary to convert these Senior Management approvals to specific implementation projects. This has resulted in a list of 26 specific SAT implementation projects.

For example, the senior management approved action entitled "Modify performance management system by implementing best industry practices" refers to one specific SAT implementation project.

On the other hand, the Senior Management action to "Significantly increase investment in employee development" resulted in the implementation of four separate SAT project recommendations: develop institutional career development guidelines; develop directorate career development programs, modify supervisor training to include career development, and develop career development guidelines for post-docs.

Project managers assigned

In keeping with the institutional nature of the entire survey effort, project managers for these individual projects were selected from a wide variety of organizations and disciplines. Many served on the SAT teams or were

UPDATE, See WORK LIFE INSERT page 4

JULIE KORHUMMEL/NEWSLINE

Tommy Smith and Jan Tulk accept the EEO/Diversity Best Practice Award.

Honors for diversity dialogues

The Laboratory's Facilitated Dialogue Series, which allows employees to explore key diversity issues in small facilitated discussion groups, has been recognized by DOE with an EEO/Diversity Best Practice Award.

Tommy Smith, deputy AD for Strategic and Diversity Initiatives, accepted the award earlier this month at the annual DOE/Contractor EEO and Diversity Training Seminar held in Portland, Ore.

"This award is great recognition for the Laboratory's dialogue series ," Smith said. "The program has been very successful since it was first started two years ago, and it continues to serve as a great tool in increasing diversity awareness at the Laboratory. The employees who have participated in the facilitated discussion have come away with much greater insight and awareness on key diversity issues. "

AWARD, See WORK LIFE INSERT page 4

Flexible schedules clock in Tuesday

The Laboratory's new Flexible Work Options Policies, which allow alternate work schedules (4/10s, 9/80s) flexible work hours, temporary schedule changes, flextime and telecommuting, begin this month.

Employees who have received approvals by their organization for an alternate work schedule will be phased in to their new schedules in a staggered implementation from Oct. 6-27.

Approvals are for six-month periods beginning each October and April.

The Flexible Work Options Policies were recommended by the Worklife Survey Action Team and endorsed by the Senior Management Council.

Here's a brief description of what the new policies allow:

- Alternate work options include 4/10s (four 10-hour days, not including a meal period, worked in a Sunday through Saturday work week), and 9/80s (80 hours worked over two calendar weeks as nine-hours per day Monday-Thursday and eight hours on Friday one calendar week with the alternating Friday off).
- Flexible work schedules allow full-time employees to work 40 hours over a minimum of five of the seven days in a

SCHEDULE, See WORK LIFE INSERT page 4

Newsline Insert

AFTER HOURS AND in between

October 2002

This calendar is brought to you as part of a Survey Action Team initiative.

1 TUESDAY

Surround yourself with beauty at the **Lab's quilt show.** Bldg. 123 and also at the pool picnic area.

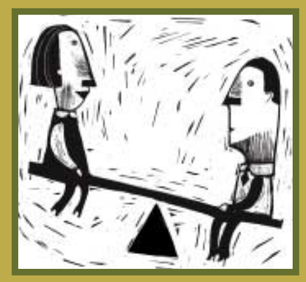
Dress for success. Check out the activeware sale in Bldg. 415.

2 WEDNESDAY

Take the **"The Road to Balance"** presented by the Employee Assistance Program at noon in Bldg. 571, room 2301. Learn to recognize the stressors that occur when trying to combine a career and a family life. Pre-registration required. Contact: Sharon Giovannoni, 2-5571.

6 SUNDAY

Celebrate the 100th year of the Teddy Bear at a **Teddy Bear Tea** at 1:30 p.m. at Ravenswood Historic Site, 2647 Arroyo Road in Livermore. Cost: $25; $15, children. Call 371-4456 for reservations.



8 TUESDAY

Time out for moms and dads. A free, noon-time **parenting class,** facilitated by parenting educator Ruth Gasten, meets the second and fourth Tuesday of each month and is open to anyone who works onsite. Meetings take place in Bldg. 571 (Human Resources), Room 2000.

> *It is helpful to understand what is normal child behavior for different age groups and what I have to look forward to as my kids grow.*
>
> *Ann Willoughby, Parenting Class participant*

14 MONDAY

Learn how to dance under the harvest moon through a LLESA speciality class.

Sign-ups begin today for **LLESA specialty class sessions** starting the week of October 28.

15 TUESDAY

Karats Jewelry will be cropping up in Bldg. 415.

16 WEDNESDAY

Are you a heart attack waiting to happen? Health Services is hosting an **American Heart Association presentation** on heart disease at noon in the Bldg. 123 auditorium. Speakers include Dr. Bill Pereira, Dr. Ronit Katz-ben Abraham, Phil Arzino, Sandra Ja'chim and heart disease survivor Cecil Jordan.

The Career Center is hosting a free workshop on **"Caring for Aging Adults,"** presented by CONCERN and the Employee Assistance Program, at noon in Bldg. 571, room 2301. Reserve your seat by calling Sharon Giovannoni, 2-5571.

The **Rubber Stamping Network Group** meets the first and third Wednesday of the month at noon in Bldg. 571, room 1301.

18 FRIDAY

Today is the last day to pick up **Disney on Ice** tickets, which are on sale in the LLESA Office, Bldg. 415.

21 MONDAY

Looking for ways to improve your "people skills?" Interpersonal Problem Solving is an interactive 2-day workshop open to all employees. The workshop will be held Oct. 21-22, 8:30 a.m. to 4:30 p.m. at the Training Center, trailer 1879. Sign up online at LTRAIN, https://www-ais.llnl.gov/llnl_only/docs/hr/ltrain, or contact 2-4842

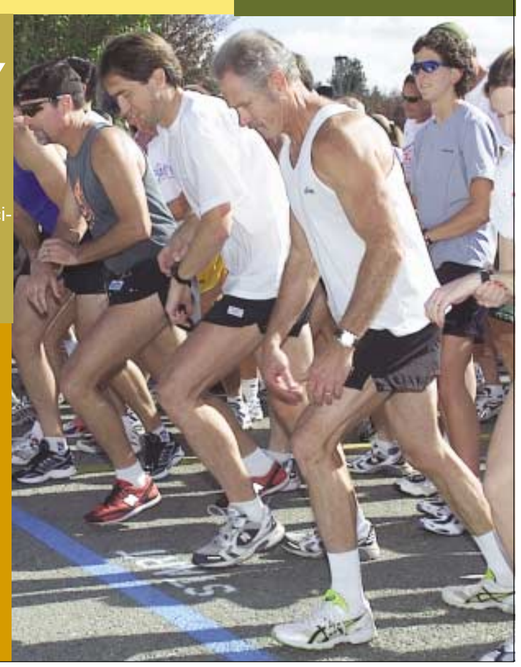
23 WEDNESDAY

Enjoy an Apple.

An **Apple computer** representative will visit the Time Zone from 11 a.m. to 2 p.m.

25 FRIDAY

The Benefits Office is hosting a brown-bag series on **how to enhance your financial security** by participating in the Tax-Deferred 403(b). 12:15 p.m. - 1:15 p.m. Bldg. 571, room 2301.



27 SUNDAY

DAYLIGHT SAVING TIME ENDS

30 WEDNESDAY

The Career Center is hosting a free workshop on "Stop **Procrastinating: Do It Now!"** presented by the Employee Assistance Program at noon in Bldg. 571, room 2301. Reserve your seat (don't put it off!) by calling Sharon Giovannoni, 2-5571.

31 THURSDAY

It's time to Run for HOME! The annual kick-off to the HOME Campaign begins at the Southwest gate. There are different start times for runners, walkers and skaters. Watch *NewOnLine* and *Newsline* for more information.

Halloween

Newsline Insert

Career Center kicks off 'Lunchtime Learning'

The Career Center is starting a new series of briefings called "Lunchtime Learning."

Offered in conjunction with Work/Life and Diversity Programs, Health Services and the Employee and Organization Development Division, this series will cover a variety of topics, including work/life balance, time management, going back to school, eldercare and putting an end to procrastination.

The first workshop will be offered Wednesday, and is on "The Road to Balance: Your Work & Personal Life." Presented by the Employee Assistance Program, it will be held at noon in Bldg. 571, room 2301.

The series is offered at no charge to all employees. Pre-registration is required to reserve a seat. To learn more about this series, go to http://eodd-server.llnl.gov/EODD/CC/ccpage1.html

For more information or to reserve a space at one of the talks, contact Sharon Giovannoni, 2-571 or giovannoni1 @llnl.gov

All of the workshops are held at noon in Bldg. 571, room 2301. Here's the schedule of workshops planned through December:

- "Caring for Aging Adults," on Wednesday, Oct. 16.
- "Stop Procrastinating: Do It Now!" on Wednesday, Oct. 30.
- "Academic Briefing," on Wednesday, Nov. 6.
- "Going Back to School Successfully," on Wednesday, Nov. 13.
- "Study Skills," on Wednesday, Nov. 20.
- "Time Management Approaches: Where Does the Time Go?" on Wednesday, Dec. 4. ■

UPDATE

Continued from Work Life Insert, page 1

involved in other aspects of the survey. In other cases, they bring unique experience or insights that are particularly relevant to the specific implementation effort.

The project managers in turn are being assisted by teams of employees — again representing the organizational and cultural diversity of the site. The end result of all of this is that we have a very capable and dedicated group of more than 75 employees who are currently engaged in various aspects of implementing the SAT recommendations.

The Laboratory's Senior Management has also demonstrated and reiterated their support for the SAT implementation effort through verbal endorsements and funding. Implementation costs for the 2002 fiscal year are close to $900,000. The costs for the 2003 fiscal year are expected to exceed this amount, with the majority of projects being implemented during this period.

Projects in place

The overall implementation effort is proceeding very well, and on schedule with the project plans. The first three projects slated for completion by this time have come in on schedule.

- This monthly *Newsline* column focusing on work/life subjects was actually the first SAT recommendation scheduled to appear. Falling under the heading of "Significantly enhance work/life services and resources," its original objective was to help make employees more aware of work/life amenities offered by the Laboratory, and to emphasize the commitment to helping employees move toward work/life balance. The original objective has now been expanded to include the column serving as a vehicle to provide reporting on the overall SAT implementation effort.
- Employees may now ship packages from site via UPS Service. This service is available through the Time Zone facility operated by LLESA and housed in Trailer 4128. The UPS receiving service is scheduled to be available in October.
- The third project to come to fruition also derives from the Work/Life SAT. This recommendation was to convert the former LLESA store (Bldg. 317) into a multi-use space available for employee networking groups. The designed modifications have been implemented, and the facility is currently up and running.

Nearing completion

In addition to the completed projects described above, a number of implementation projects have met major milestones and are on the verge of completion.

- The flexible work schedule project, which includes a number of work schedule options and policies describing their use, has been completed. In particular, as of Oct. 6, employees with the appropriate management approval may begin working 9/80 schedules.
- A program to increase apprentices in the 800 series (crafts) and 900 series (machinists) is also slated to begin next month.
- A recommendation from the Salary and Compensation SAT to employ a facilitator devoted to addressing employee benefits services and concerns has resulted in a new hire into a position funded by UC.
- Also, work is being completed on a Web-based tool that will provide employees with an estimate of the total monetary value of their Laboratory compensation and benefits package.

What's next

In the next week or so we will have a new Web-based information resource that will provide project management and status information for each project. The address for the site will be provided in future editions of *Newsline* and NewsOnline. Until then, please feel free to contact me or any of the project managers for further information or comments regarding any of the survey projects.

Tommy Smith is deputy AD for Strategic and Diversity Initiatives. He is leading the effort to implement the survey initiatives. For more information, contact him at 2-6634 or smith80@llnl.gov ■

AWARD

Continued from Work Life Insert, page 1

The dialogue series was started in October, 2000, in response to employees' requests to explore diversity topics more deeply.

The series features prominent speakers who lecture at the Lab. Following their talks, small groups of employees meet with a facilitator to further explore the concepts presented in the talks.

This program works in conjunction with the Laboratory's Diversity Speaker series to bring high-profile, thought-provoking speakers to the Laboratory. Speakers who have participated include: Eric Foner, Columbia University professor and author of "The Story of American Freedom"; UC Santa Cruz sociology professor David Wellman, who gave a talk on "Who is an American?"; and Jane Elliot, developer of "Brown Eyes, Blue Eyes" concept and featured on the PBS feature "Eye of the Storm." ■

SCHEDULE

Continued from Work Life Insert, page 1

calendar week. The number of hours scheduled per workday may be more or less than eight. Part-time employees work the number of hours corresponding to their employment percentage over the five-day period.

- Flextime, already in use, is flexibility in the start and stop times of both full-time and part-time employees' assigned daily work schedules around established business hours.
- Temporary schedule changes permit a temporary change in an employee's assigned daily start/stop times, assigned work days or, for some schedules, assigned days off. It can be used to address an employee's temporary work/life needs.

Each directorate has developed guidelines for use of flexible work options, and decisions must consider business needs. Employees interested in the Flexible Work Options Policies must check with their own directorates to see what is available. Those interested in 4/10s or 9/80s but who are not enrolled for October implementation must wait until the next application period for changing in April.

Additional information about the policies is available on the Web at http://www-r.llnl.gov/fwo ■

CELEBRATING FIFTY YEARS

Community comes out for scientific show and tell

Continued from page 4

enhancing the security and defense of the nation."

The honors for the Lab stretched all the way back to Thursday and Wednesday, when scientific and community leaders presented the Lab with myriad proclamations and gifts.

Thursday's ceremony featured reflections from international colleagues, among them Clive March, chief scientist of AWE Aldermaston in the United Kingdom; Paul Taylor, director of the UK's Ministry of Defense; Alain Delpuech, director of Military Applications, France; Georgi Rykovanov, director of VNIITF, the Russian Federal Nuclear Center; and Radii Il'Kaev, director of VNIIEF, the Russian Federal Nuclear Center, and Yuri Barmakov, director of the All Russian Scientific Research Institute of Automatics.

Representatives from the Department of Defense and DOE laboratories included: Brig. Gen. Robert Smolen, director of Nuclear & Counterproliferation, Air & Space Operations, U.S. Air Force; Fred Tarantino, head of Bechtel-

JULIE KORHUMMEL/ NEWSLINE

The 50th anniversary time capsule was dedicated by Tamara Jernigan, Jan Tulk, Bruce Tarter, Michael Anastasio and John Glenn (from left) during Special Guest Day. The capsule is currently on display in the Discovery Center.

Nevada; John Browne, director of Los Alamos National Laboratory; Jonathan Dorfan, director of the Stanford Linear Accelerator Center; Paul Robinson, director of Sandia National Laboratories, and Sally Benson, deputy director of Lawrence Berkeley National Laboratory.

On Wednesday, key community leaders and political representatives presented 15 proclamations to the Lab. Director Michael Anastasio accepted the plaques from aides to Sen. Dianne Feinstein, Rep. Tauscher, Gov. Gray Davis, state Sen. Dick Monteith, Assemblywoman Lynne Leach, Alameda County Supervisor Scott Haggerty and Contra Costa Supervisor Donna Gerber, as well as representatives form the cities of Pleasanton, Tracy and Livermore.

JULIE KORHUMMEL/ NEWSLINE

Michael Anastasio accepted several proclamations during Special Guest Day, including one from Chris Campana, who was representing Gov. Gray Davis and one from Assemblywoman Lynne Leach.

JULIE KORHUMMEL/ NEWSLINE

John Knezovich (left), explains the capabilities of the Center for Accelerator Mass Spectrometry to a group of community leaders during Special Guest Day.

Throughout the day the Lab played host to more than 150 invited community leaders, who toured Lab programs and facilities and attended special panel discussions. Later that afternoon they, along with members of the Livermore, Pleasanton, Tracy, San Ramon and Dublin chambers of commerce, attended a special time capsule and historical marker dedication along with the grand opening of the newly designed Discovery Center (formerly the Visitors Center).

Former astronaut and U.S. Sen. John Glenn was on hand to help unveil the marker and time capsule. The capsule's 83 items include a letter from Director Michael Anastasio, the Lab's "Fifty Years of Stories" and "Fifty Years of Science" books, an LLNL site map and timeline, an interview with employee Maurie Lewis (she was randomly selected), a HOME Campaign T-shirt, two issues of *Newsline*, an employee badge, an aerogel sample, a genetic map of chromosome 19, a Lab pager, cell phone and dosimeter, 1952 proof coins, Director Emeritus Edward Teller's memoirs, a NIF-scale hohlraum and non-ignition target sample, two bottles of Livermore wine and an autographed picture of Glenn, among other items. Also featured is the birth certificate of the infant son of Lab employee Tara Carreira, Gavin. The boy was born Sept. 3, the closest to the actual anniversary date, Sept. 2.

Senior managers then sealed the capsule shut, allowing participants to sign the exterior. The capsule will be buried near the Discovery Center and reopened in 2052. It is currently on display in the Discovery Center (Bldg. 651) until it is buried in late October.

JULIE KORHUMMEL/ NEWSLINE

1952 day saw the return of some members from the original corps of Labortory employees who opened the site back in 1952, among them Jim Hadley, Chuck Hurley, and Cecilia Larsen (top). Above, Bruce Tarter shows off the cycletron, Laboratory namesake E.O. Lawrence's famous invention.

Founder's day

In 1952, 75 "co-founders" opened what was then the Livermore branch of the University of California Radiation Laboratory. On Monday, seven members of the original cadre returned to the Lab for a special panel discussion, in which each member reminisced about the early days and marveled at what the Lab has become.

Panelists included Chuck Blue, Jim Hadley, Chuck Hurley, Cecilia Larsen, Chuck Leith, Duane Sewell and Louis "Fuzzy" Wouters. Wouters said he was given the nickname Fuzzy because his Lab colleague's dog, aka Fuzzy, disappeared just before Wouters started at the Lab.

Robert Lawrence, the son of Ernest O. Lawrence, also addressed the crowd, offering memories of his father.

Standout memories in panelists' minds were the intense heat (the temperature hit 116 degrees on "opening day,") the salt tablets staffers would take to prevent dehydration, the downtown "creamery" where the Lab hierarchy would "hang out," and namesake E.O Lawrence racing around town in his blue Cadillac convertible.

Lawrence recalled asking his dad how fast the car would go and the elder quickly replied, "Let's find out." They quickly hit 100 mph on Livermore's dusty farm roads.

All chuckled when Leith recalled one of the original premises of the Lab — the staff would never number more than 250, and those who came to Livermore would not work there for more than two or three years.

CGSR explores 'endless frontier' of science, technology

In keeping with the Laboratory's 50th anniversary theme, the Center for Global Security Research (CGSR) dedicated its 2002 futures workshop series to looking ahead 50 years under the theme "Pioneering the Endless Frontier: Science and Technology for National Security in the Next 50 Years."

"Usually we look 10 to 15 years ahead," said Ron Lehman, CGSR director, noting that even 10 to 15 years represents a daunting challenge. "We're not trying to predict the future, but to understand the forces in play and try to shape them."

The two-day conference culminating the workshops included two people who helped shape the "space age" — former astronaut and U.S. Senator John Glenn and Sir Arthur C. Clarke, author of "2001 a Space Odyssey."

Sir Arthur, 85, was unable to travel to the Laboratory from his home in Sri Lanka due to poor health, but was able to listen via telephone to the final panel discussion led by former Secretary of Defense William Perry. Participants in the conference were also shown the video of an interview with Sir Arthur conducted by Lehman and Patrick Mendis. (Look for additional coverage in next week's *Newsline*.)

MICHAEL ANTHONY/TID

Former Defense Secretary William Perry led a panel discussion on the future of science.

Other participants on the panel were Jane Wales, president and CEO of the World Affairs Council of Northern California; Paul Saffo of the Institute for the Future; Vic Reis, former assistant Energy Secretary for Defense Programs; John Browne, director of Los Alamos National Laboratory; and Mim John of Sandia National Laboratories, California.

The discussion was taped by KQED radio and will be broadcast as part of the World Affairs Council program at 8 p.m. Monday, Sept. 30 and again at 2 a.m. Tuesday, Oct. 1.

This year's workshops and concluding conference brought together some 100 specialists from U.S. government agencies, national labs, research universities, research centers and institutes and industry. Participants working in subgroups examined three principal thematic questions: What is national Security for the Next 50 Years?; How Will Science and Technology Change?; and What are the Implications of Increasing Globalization?

For background information, see the March 8, 2002 edition of *Newsline* or for more current information, check the Web at http://cgsr.llnl.gov/

PANEL

Continued from page 1

the need for a second nuclear weapon design laboratory.

"Ernest was a great supporter of the philosophy that anything can be done," Teller said. "That built confidence in me and we finally got going in a place called Livermore."

Teller said he served as the first spokesman for the Lab during his term as second director.

"We (the United States) had a wonderful record on the hydrogen bomb. We tested it, perfected it and never used it — and that served to win the Cold War," he said.

First Lab Director Herb York told of the root of the Livermore Laboratory stemming from both Lawrence and Teller. As part of the Manhattan Project, Lawrence's early research was concentrated on the war effort. J. Robert Oppenhiemer, who was director of Los Alamos at the time, instructed Lawrence to produce enough uranium 235 to make a nuclear weapon, York recalled. York started working with Lawrence in 1943 when they both worked at Oak Ridge Laboratory to produce the uranium 235 that was used in the atomic bombs dropped on Hiroshima and Nagasaki.

York reminisced about Lawrence's dedication to science. "It was Christmas Eve in 1949 or 1950 and Lawrence visited the (Berkeley) lab in the evening. He went to check on the synchrotron and came back and said 'There's no one there,'" York said. "That tells you something about Lawrence. I would do anything that he asked me to do."

York said he actually worked with Lawrence at the Livermore site at least two years before it was converted from a former naval air station to the Lab. On New Year's Eve of 1951, Lawrence asked York a critical question: "Do you think we need a second radiation laboratory?"

"I was terribly naïve," York said. "I had no idea there were all these conversations going on that I wasn't privy to. I didn't know if we needed a second lab or not, but I said it wouldn't hurt."

Then in spring 1952, at the young age of 31, York was asked to run the Livermore Lab. "Could you run it?" Lawrence asked, to which York responded "I'm not sure but it's worth a try."

The rest is history as York, now 81, served as the Lab's first director.

"If Lawrence could come back to the Lab today and see the enthusiasm and originality of the people here, he would really like it," York said.

Harold Brown, who served as the Lab's third director, joined last week's panel via teleconference. He talked about the Lab's continuing goal to assure the effectiveness, reliability and safety of nuclear weapons, a core mission that has endured since the Lab's founding.

Since its inception, the Lab has moved into other national security areas, energy, environment and used interdisciplinary teams to complete its mission, Brown said.

"It's a reason to celebrate when you can last for 50 years," said Foster, 80, who served as the Lab's fourth director. "This Lab has survived and flourished because of the contributions of the last 50 years. And those contributions happened because of the talent that we are able to attract to the Lab."

Foster said government red tape needs to be slashed so that scientists can conduct research rather than spend time doing paperwork before research can begin. He said the Lab faces a large challenge by ensuring that the stockpile is safe and reliable, especially if underground testing is resumed.

For Michael May, who served as director from 1965 to 1971, the call to become the next director came during his oldest daughter's 10th birthday party.

Serving during a time of intensive nuclear testing, May said the job was "a challenge, rewarding and testing period of my life."

He said the Lab's future depends on its work in national security, nonproliferation, counterterrorism and securing nuclear materials at the source. "The mission isn't over," he said. "We need to educate the public and the policymakers to a nuclear reality."

For John Nuckolls, the directorship he took over from the late Roger Batzel, who served as director for nearly a third of the Lab's history —from 1971 to 1988 — took on a different tone when "the Cold War ended."

"I didn't anticipate the end of the Cold War or the load of bureaucracy which followed," he said, beginning with the Dingle Committee hearings where he testified. Also, he said the budget for Brilliant Pebbles missile defense program fell from nearly $300 million per year to zero and the weapons budget declined two-fold.

Looking to the 21st century Laboratory, Nuckolls said he initiated the National Ignition Facility approval process and created the Nonproliferation, Arms Control and International Security Directorate to address weapons of mass destruction and terrorism.

"The challenges in the 21st century may be bigger than the 20th century," he said. "Look for surprises, invent and exploit them."

When Bruce Tarter came to the helm in 1994, he was tasked with defending the Laboratory before the Galvin Commission. That commission, called by former Secretary Hazel O'Leary, was sent to explore whether the Lab's nuclear weapons work should be closed down.

"The Cold War was over and done and finished," Tarter said during last week's panel. "The revalidation (for the Lab) came from the stewardship program."

That validation moved ahead with Tarter's support for supercomputers and the NIF. He said the Lab's future depends on maintaining national security as its core mission, deciding what new areas to invest in, and ensuring the nuclear weapons stockpile is safe and reliable.

AWARDS

Continued from page 1

Oct. 28 in Washington D.C.

Santer, the first Lawrence awardee to be honored for research in climate modeling, is cited for "his seminal and continuing contributions to our understanding of the effects of human activities and natural phenomena on the Earth's climate system."

"The award was a big shock. I think I have an opportunity now to tell it straight the way I see it," Santer said, referring to his research that indicates that human activities have had an effect on climate and the Earth's warming trend. "It also gives me the opportunity to inform the Department of Energy and the Administration about what we're doing in this field here at the Lab."

Santer said he views the award as an opportunity to raise public awareness about global warming.

"We can't be a lone ranger on this issue," he said. "This is a global issue requiring truly global solutions. I think that this Lab has a role to play in developing these solutions."

Goodwin is cited for his theory work in creating equations of state for plutonium under extreme pressures. Specifically, his work "provided the crucial insight to design and implement fundamental experiments on the properties of plutonium that enabled the resolution of anomalous results from underground nuclear tests."

Goodwin's work is essential in the nation's ability to address stockpile stewardship, reliance in the nation's aging nuclear weapons, and their refurbishment without further nuclear testing.

"Basically what I did was write some equations of state for plutonium under extreme conditions derived from peculiarities I saw in nuclear test data. They looked kind of goofy at the time, but now it looks like they are right experimentally," Goodwin said. "This is a real honor to be given an award named after one of the greats in atomic research."

Goodwin and Santer are the latest additions to a list of 24 former Livermore winners of the Lawrence Award since it was first awarded in 1960. In its first year, Director John Foster earned the award for his work in national security. Other Livermore winners include former directors John Nuckolls in 1969 and Michael May in 1970 for their work in national security. Most recently, Charles Alcock won the award in 1996 for his research in physics.

Other Lawrence winners this year include: C. Jeffrey Brinker of Sandia National Laboratories and the University of New Mexico for his work in the materials research category; Claire Fraser of The Institute for Genomic Research for her work in the life sciences category; Keith Hodgson of Stanford University and the Stanford Linear Accelerator Center for his work in the chemistry category; Saul Perlmutter of Lawrence Berkeley National Laboratory for his work in the physics category; and Paul Turinsky of North Carolina State University for his work in the nuclear technology category.

Looking inside the Laboratory

Family members and friends numbering more than 12,000 turned out Saturday and Sunday for Family Open House. Throughout the two days visitors toured various Lab facilities, with plenty of hands-on interaction in between. Popular stops included the Fun With Science demonstrations near the Lab pool area (right), and the target chamber of the National Ignition Facility (below left). Visitors were able to get up close and personal with the various projects in the Biology and Biotechnology Research Programs (below right). At bottom left, Lab researcher Willy Moss demonstrated various scientific phenomena to would-be sceintists. On Saturday, Congresman Richard Pombo stopped by for various tours, including presentations of portable detection technologies by Ron Cochran and Page Stoutland (bottom right).

Photos by Don Johnston/Newsline

SCIENCE DAY

Continued from page 1

and Technology — Our Heritage, Our Future" Science Day 2002. During the lunch hour, more than 70 scientists were on hand to demonstrate and explain their projects during a poster expo outside the auditorium.

The posters covered a vast array of scientific disciplines and research, among them: "Making Peptides in Cometary Impacts," "Spheromak Path to Economic Fusion Energy," "Solid-Oxide Fuel Cell Development," "Active Interrogation of Cargo Containers," "Distribution of Spore Particles,""Decontamination Agents in an Office Environment," "Biological and Materials Science Applications of Single-Molecule Spectroscopy," and "High-Energy Astrophysics from Scientific Balloons" to understand the collapse of a massive star.

JULIE KORHUMMEL/NEWSLINE

Di Cummins (center) and Cathy Aaron (right) look at the ribbon fiber laser project, as shown by Zhi Liao (left).

This year's Science Day lectures highlighted the past, present and future of four different fields of study in which the Lab is considered pre-eminent: biological research, climate modeling, astrophysics and fusion.

Associate Director At Large Bruce Tarter introduced the day's agenda and served as moderator for the afternoon session on astrophysics.

Before the presentations started, Director Michael Anastasio announced the two teams that won the Lab's 2002 Science and Technology awards. J. Patrick Fitch (team leader), Shea N. Gardner, Thomas A. Kuczmarski, Paula M. McCready, Linda A. Ott, Thomas R. Slezak, Elizabeth A. Vitalis and Adam T. Zemla earned one of the awards for the rapid development of nucleic acid diagnostics than can be applied to fight the war on terrorism.

The other team made up of Douglas Wright (team leader), David Lange, Richard Bionta, Marshal Mugge and Karl van Bibber received the award for contributions to the discovery of CP violation in the B-meson system.

Cynthia Nitta, a physicist and design group leader for the advanced tools group in B Division of the Defense and Nuclear Technologies Directorate, was selected as one of the 2003 Teller Fellows for her weapons design accomplishments. Fred Milanovich, chief scientist in R Division of the Nonproliferation, Arms Control and International Security Directorate, was selected as the other 2003 Teller Fellow for his bioterrorism work. Milanovich will work on "the next generation of detectors for genetically engineered threats," Anastasio said.

In his introduction to the invited talks, Tarter emphasized it's just as important to learn about how science is done as what results from that science.

"The way we do science is a lot different than it appears," Tarter said before introducing the biological research session. "We do science like the way you used to do homework. You figure out what you're doing and scribble around and come up with an answer. Then you write it up all neatly and turn it in."

Bioscience beginnings

As the chair of the biological research session, Acting Biology and Biotechnology Research Program Associate Director Bert Weinstein discussed the changes in biology that have occurred from the time the Lab's bioscience department was founded in 1963, when the identification of human chromosomes was just beginning, to today, when the entire human genome has been mapped.

Senior scientist and former BBRP Associate Director Mort Mendelsohn described how biology at LLNL began under the Plowshare Program, with its short-lived mission to use nuclear explosives for civil engineering projects. As the mission changed, Mendelsohn was recruited in 1972 to create a top-of-the-line cellular and chromosomal measurement operation that eventually led to the human genome, specialized genomics and technological approaches to coping with bioterrorism.

Joe Gray, UCSF professor of laboratory medicine and radiation oncology and a former Lab scientist, described the program's succession of discoveries, from purifying chromosomes by flow cytometry, to chromosome painting, to building recombinant DNA libraries of each human chromosome, and to the Human Genome Project, as well as to his later work at UCSF on characterizing the chromosomal abnormalities that occur in human cancer.

Milanovich gave a comprehensive description of the efforts to classify and detect pathogens, and Lisa Stubbs gave a provocative and exciting look into the future of genomics research.

Climate modeling

The climate modeling session focused on the origins and impacts of global climate variations being a key element of the Lab's atmospheric sciences program for five decades.

Senior physicist Chuck Leith, a pioneer in climate modeling, started making crude atmospheric climate models in the early 1960s. Those models served as some of the earliest examples of using computers to simulate weather patterns

Mike MacCracken, a senior global change scientist at the Office of U.S. Global Change Research Program and on assignment from the Lab, discussed the importance of creating the National Atmospheric Release Advisory Center in the 1970s. The center tracks the dispersal of radiological, biological and chemical agents in the atmosphere.

Phil Duffy, group leader for the climate and carbon cycle modeling group, discussed how the most current climate models closely mirror the gradual warming of the earth as seen in the observational record of the last century. He said the earth has warmed about 1 degree Fahrenheit during the 20th century.

"The 1990s were the warmest decade on record," he said. Our models have shown that "the oceans are warming and the lower atmosphere is warming." He said that atmospheric carbon dioxide, one of the key greenhouse gases, has increased 31 percent since 1750.

Astrophysics and adaptive optics

During the astrophysics session, Tarter gave the floor to Colgate, physicist Claire Max and research physicist Dave Dearborn.

Colgate gave a fascinating description of how the early work on supernova originated and on its close relationship with the weapons program and weapons physics tools.

"The diffusion of debris in a nuclear explosion is similar to the aurora," Colgate said. "A supernova (the death of a star) is just like a nuclear bomb in space."

Max described how adaptive optics, originally developed for military applications within high-powered lasers, has transformed the world of astronomers so they can now image celestial phenomena with more clarity. Dearborn discussed how his team began modeling whole stars in three-dimensional computer simulations to better understand complex processes like convection.

Five decades of fusion

During the final fusion session, NIF Associate Director George Miller took the audience on a five-decade journey of fusion energy — from the discovery of the laser in 1960 to the construction, commissioning and imminent operation of the National Ignition Facility.

Director Emeritus John Nuckolls talked about the beginnings of the laser-fusion program and how scientists were tasked with discovering the smallest fusion explosions and how that explosion could be initiated in a laboratory setting.

Bruce Remington, group leader for the high-energy-density physics program for NIF, discussed how the extreme conditions of pressure, temperature and density found in the celestial world such as accreting black holes and supernova remnants can be replicated in laboratory settings with high-power lasers, magnetic pinch generators and charged-particle beams.

Fusion Energy Program Leader John Lindl discussed the scientific foundation of inertial confinement fusion at the Lab during the last 30 years. He expounded on the research Lab scientists undertook to attain critical densities and pressure to achieve ignition.

ISAACS

Continued from page 1

Pentagon, the uniformed service, and sister laboratories both here and abroad.

Equally compelling were the remarks made by panels of employees who were here in 1952, the former Lab directors, participants in Science Day, former Sen. John Glenn, and members of our community. Among the many special moments was the introduction of E. O Lawrence's son, Robert, and his stories about his father. Watching UC President Richard Atkinson put gold medals around the necks of former early directors Edward Teller, John Foster, and Mike May and participating in the standing ovation for Dr. Teller couldn't help but bring home a feeling of pride and accomplishment.

The events also brought home just how well you and your predecessors have performed over these past decades, and how much the country recognizes and appreciates it. It was also clear that many continue to look to this Laboratory for important leadership and contributions in facing the challenges to our security and well being in the coming decades.

None of these celebrations would have been possible without the strong and continuing contributions and cooperation of many of our Lab employees, too many to mention. Literally hundreds of you were involved in making this week and activities throughout the year a huge success that will continue to pay dividends in our relationships with our sponsors, partners, the community and public. And I believe the renewed pride all of us have in the Lab will contribute toward our ability to recruit a workforce to extend Livermore's traditions well into the future.

On behalf of the 50th Anniversary Committee thanks to all of you for demonstrating, once again, why this place is special.

Tom Isaacs is the director of the Office of Policy, Planning and Special Studies and chair of the 50th Anniversary Committee.

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